



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB2001-0108-FEC

August 30, 2001

Mr. Bob Graham
Natural Resources Conservation Service
101 SW Main Street, Suite 1300
Portland, Oregon 97204-3277

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation, Saylor Property Bank Protection and Habitat
Improvement Project, Siuslaw River Basin, Lane County, Oregon

Dear Mr. Graham:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) for the Saylor Property Bank Protection and Habitat Improvement Project, Lane County, Oregon. The NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Oregon Coast coho salmon (*Oncorhynchus kisutch*) or destroy or adversely modify critical habitat. Pursuant to section 7 of the ESA, NMFS has included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary and appropriate to minimize the potential for incidental take associated with this project. This Opinion also serves as consultation on Essential Fish Habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations (50 CFR Part 600).

Questions regarding this letter should be directed to Rob Markle of my staff in the Oregon Habitat Branch at 503.230.5419.

Sincerely,

Michael R. Crouse

Donna Darm
Acting Regional Administrator

Endangered Species Act - Section 7
Consultation
and
Magnuson-Stevens Act
Essential Fish Habitat Consultation

Biological Opinion

Saylor Property Bank Protection and Habitat Improvement Project,
Siuslaw River Basin, Lane County, Oregon

Agency: Natural Resource Conservation Service

Consultation Conducted by: National Marine Fisheries Service,
Northwest Region

Date Issued: August 30, 2001

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1. ENDANGERED SPECIES ACT

1.1 Background

On May 21, 2001, the National Marine Fisheries Service (NMFS) received a letter from the Natural Resource Conservation Service (NRCS) requesting formal consultation pursuant to the Endangered Species Act (ESA) for an NRCS-funded project on Wildcat Creek, in Lane County, Oregon. A biological assessment (BA) was submitted with the letter describing the proposed action and potential effects that may result from project implementation. In the BA the NRCS determined that the proposed action was likely to adversely affect Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*), an ESA listed species.

The project site is on Wildcat Creek at approximately river mile 5 near the community of Globe, Oregon. Wildcat Creek is a Siuslaw River tributary. The subject property (22 acres) is at the confluence of Shultz Creek and Wildcat Creek, and is rural residential. The property owner is Ken Saylor. The pasture land has been used for horses in the past, though currently no livestock use occurs. Recent construction on Highway 126 cut off an historic meander of Wildcat Creek and confined the creek to a narrower strip of valley bottom. This constriction has added to the complexity of addressing streambank erosion. In recent high water events bank loss has markedly increased. A house within 15 feet of the edge of bank and a private bridge are threatened by further erosion.

This biological opinion (Opinion) considers the potential effects of the proposed action on OC coho salmon, which occur in the proposed project area. OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587), critical habitat was designated on February 16, 2000 (65 FR 7764) and protective regulations were issued on July 10, 2000 (65 FR 42422). The objective of this Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of OC coho salmon, or destroy or adversely modify designated critical habitat for this species. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

1.2 Proposed Action

The proposed action is NRCS funding of a bank protection and habitat improvement project on the Saylor property. Mr. Saylor proposes a combination of streambank protection, wetland enhancement, livestock exclusion, and riparian area planting as part of a conservation plan with NRCS. The plan will expire in March 2021. The purpose of the project is to protect property, reduce sediment loads in the stream, increase diversity of habitat for terrestrial species, improve species diversity in riparian areas, and wetland restoration. The project will follow NRCS Conservation Practice Standards.

Erosion along an 80-foot length of streambank threatens the house and access bridge. Full bank riprap is proposed along the affected bank (80 feet). The existing bank is approximately 10 vertical feet in height. A 4.2-foot deep toe trench will be excavated in the wetted channel and

the bank sloped back to a 2:1 (horizontal:vertical) angle. Approximately 415 cubic yards (cy) of material are expected to be excavated, of which, approximately 319 cy will be used for fill and 52 cy will be used for bedding material beneath the rock face. Approximately 267 cy of rock will be placed from the toe trench to the top of the bank. Willow poles will be planted within the rock embankment during construction. The proposed bank protection action will be take at least one week to complete. Willows and ninebark will be planted along the top of the bank during the winter and early spring planting season. An additional bank erosion site, immediately downstream on the opposite bank, was considered for structural protection also, but was planted instead.

Livestock have been removed from the property. The project proposal includes the establishment of an ungrazed riparian area beside the creeks. Should livestock to be reintroduced to the pasture before March 2021 (period of conservation plan), fencing would be installed to protect riparian vegetation.

Mixed species riparian plantings have taken place during the past four years (1998-2001). The current year's plantings include native hardwood and conifer tree and shrub species. Additional planting along the 0.25 mile reach is proposed for next season (2002).

Proposed wetland restoration will include reconnecting existing swales to receive overland flow during high-water events. Approximately 40 cy of material will be excavated to improve swale inundation. The design incorporates elements to prevent fish entrapment. An existing low point in the bank at the downstream end of the project area will be maintained to continue to allow backwater flooding from the creek to occur. Woody debris will be added to the wetland to provide amphibian habitats.

Other than the structural bank protection, no deleterious effects are anticipated to result from project activities. The proposed project includes the following set of best management practices (BMPs) designed to reduce adverse environmental impacts. The NMFS regard these BMPs as integral components of the project and part of the proposed action.

- All in-water work will occur during the Oregon Department of Fish and Wildlife (ODFW) recommended in-water work window, July 1 to September 15 (ODFW 2000), which will minimize the presence of migrating and spawning OC coho salmon at the project site and allow work to occur during the dry season.
- Equipment will work from above the banks of the channel.
- Rock will be individually placed. No end dumping will occur.
- NRCS Pollution Control Guidelines will be followed.
- Fuel storage, refueling and servicing of construction equipment and vehicles will be 175 feet from any waterbody.

- Work will be completed in a way that will control erosion and minimize sediments and other pollutants to waterbodies.
- Accidental chemical spills such as fuel or hydraulic fluid will be immediately contained. Provisions include terrestrial and aquatic containment.
- An ODFW fish biologist will be notified before construction.
- Plantings that fail will be replaced. Any failures after one replanting will be evaluated to determine need and appropriateness of further replanting.
- Construction will take place within as short a period as possible to minimize duration of disturbance.

1.3 Biological Information and Critical Habitat

Although limited data are available to assess population numbers or trends, NMFS believes that all coho salmon stocks comprising the OC coho salmon Evolutionarily Significant Unit (ESU) are depressed relative to past abundance. The status and relevant biological information concerning OC coho salmon are described in the proposed and final rules from the Federal Register (July 25, 1995, 60 FR 38011; and May 6, 1997, 62 FR 24588, respectively), and Weitkamp *et al.* (1995).

Abundance of wild coho salmon spawners in Oregon coastal streams declined from about 1965 to roughly 1975 and has fluctuated at a low level since then (Nickelson *et al.* 1992). Spawning escapements for this ESU may be less than 5 percent of that in the early 1900s. Contemporary production of coho salmon may be less than 10 percent of the historic production (Nickelson *et al.* 1992). Average spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. Average recruits-per-spawner may also be declining. The OC coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al.* 1995).

Timing of adult coho salmon river entry is largely influenced by river flow. Coho salmon normally wait for freshets before entering rivers. In the Siuslaw River watershed, adults are believed to enter the river between September and mid-January (Tami Wagner, ODFW, personal communication via telephone with R. Markle, February 6, 2001) with peak migration into the Siuslaw River occurring in October (Mullen 1981, as cited in Weitkamp *et al.* 1995). Spawning occurs from late October to late January with peak spawning generally occurring in mid-December (Weitkamp *et al.* 1995). Seaward migration of juveniles occurs during spring. Reports of outmigration timing vary from February through June (Rodgers *et al.* 1993, as cited in Weitkamp *et al.* 1995) to March into early July (Tami Wagner, ODFW, personal communication via telephone with R. Markle, February 6, 2001).

The proposed action will occur in designated critical habitat for OC coho salmon. Critical habitat for OC coho salmon includes Oregon coastal river basins (freshwater and estuarine areas) between Cape Blanco and the Columbia River. Freshwater critical habitat includes all waterways, substrates, and adjacent riparian areas—areas adjacent to a stream that provides the following functions: shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody material or organic matter—below longstanding, natural impassable barriers (i.e., natural waterfalls in existence for at least several hundred years) and several dams that block access to former coho salmon habitats. For the purposes of this consultation, the adjacent riparian zone has been defined as the distance equal to the height of one site-potential tree, or 210-foot slope distance, from the edge of the active channel. The proposed project will take place within the active channel and adjacent riparian zone.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NMFS uses the following steps: (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or adversely modify its critical habitat. In completing this step of the analysis, NMFS determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the continued existence of the listed species or result in destruction, adversely modify their critical habitat, or both. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

1.4.1 Biological Requirements

The first step in the methods NMFS uses for applying the ESA to listed salmon is to define the biological requirements of the species most relevant to each consultation. The NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new data available that are relevant to the determination (Weitkamp *et al.* 1995).

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful spawning, rearing and migration. The current status of the OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened.

1.4.2 Environmental Baseline

Regulations implementing section 7 of the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. The environmental baseline also includes the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress.

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). Direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions lead to additional activities or affect ecological functions contributing to stream degradation. For this consultation, the action area includes the affected streambed, bankline, adjacent riparian zone, and aquatic areas of Wildcat Creek from approximately river-mile 5 downstream to approximately river-mile 4.

The bulk of production for the OC coho salmon ESU is skewed to its southern portion where the coastal lake systems (e.g., Tenmile, Tahkenitch, and Siltcoos basins) and the Coos and Coquille Rivers are more productive. Though the Siuslaw River basin is immediately north of the Siltcoos basin, the OC coho salmon population is depressed and the habitat in the action area is under seeded. OC coho salmon use Wildcat Creek for migration, spawning and rearing. Spawning is known to occur in both upstream and downstream reaches and tributaries of the creek.

The Siuslaw River basin has approximately 265 miles of potentially fish-bearing streams (BLM 1996). Habitat degradation to decline of coho salmon runs in the watershed (BLM 1996). A lack of large woody material (LWM) in watershed streams has been identified. Channel downcutting has been attributed to this lack of instream structure, which has resulted in an overall drop in the level of the Siuslaw River. Downcutting of the mainstem has in turn caused bank instability of tributary channels as they downcut to meet the lower mainstem elevation (BLM 1996).

The Siuslaw River is on the Oregon Department of Environmental Quality (ODEQ) 303(d) List of Water Quality Limited Water Bodies for temperature. The temperature standard (64 °F) is regularly exceeded (63%) during summer flows from the mouth to the headwaters. Historic readings at Mapleton (approximately 30 miles downstream of the project site) show that the

temperature exceedences occurred in 1980, 1982, and 1984 to 1992 with a maximum of 75.2 °F (ODEQ 2001).

The NMFS concludes that not all of the biological requirements of the species within the action area are being met under current conditions, based on the best available information on the status of the affected species; information regarding population status, trends, and genetics; and the environmental baseline conditions within the action area. Significant improvement in habitat conditions over those currently available under the environmental baseline is needed to meet the biological requirements for survival and recovery of these species. Any further degradation of these conditions would have a significant impact due to the amount of risk they presently face under the environmental baseline.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Actions

Rivers are dynamic systems that perpetually alter their courses in response to multiple physical variables. Houses and other structures constructed along waterways are subject to flooding and undercutting from these natural changes in stream course. Structural embankment hardening has been a typical means of protection for structures along waterways. Impacts to waterways from revetment installation are simplification of stream channels, alteration of hydraulic processes, and prevention of natural channel adjustments (Spence *et al.* 1996). Continuous rock riprap revetments and concrete bulkhead can adequately armor banklines at a single site, but simultaneously destroy or degrade other bankline features. By design, the hardening measures transfer and focus hydraulic forces to other areas. Nearshore topography is scoured, critical fish habitats are often degraded or destroyed, terrestrial habitat is lost, and erosion of neighboring property can be accelerated.

The value of rearing habitat along stream banks will be altered by placement of riprap. On a reach scale, riparian vegetation and streambed substrate will be lost, resulting in a loss of habitat complexity. Stream and flood plain interactions, and stream processes essential to support listed fish will be lost. The result will be a decline in fish use at the site (Beamer and Henderson 1998, Peters *et al.* 1998). Where rock riprap must be used, embankments roughened by the placement of 1.0 to 1.5 meter diameter rock along the toe¹ of the bank have been shown to provide greater salmonid rearing use for all species except under yearling steelhead over smaller diameter material (Lister *et al.* 1993). The streambank hardening not only affects stream function along the bank but can contribute significantly to stream channelization and loss of critical stream processes. Over the long term, the placement of riprap will result in the consolidation or hardening of the stream bank, and the modification of stream hydraulics and hydrology, and a reduction in the future supply of large woody material (LW). On a large scale, the continued placement of riprap will lead to a continual degradation of properly functioning

¹ “Toe means the break in slope at the foot of a bank where the bank meets the bed.

condition (PFC) or riparian function that is necessary to support viable fish populations. These effects can be offset with compensatory mitigation.

The NMFS defines bioengineering as the use of plant materials and organic structural elements (i.e., root wads, logs, etc.) for stabilizing eroding banks. Vegetation must be the primary structural component, and the use of rock or similar hard material, must be held to a practical minimum and at scour critical points only. Typically, rock should be limited to the toe of the bank. When bioengineered elements are used ecosystem processes are enhanced compared with traditional structural bank hardening treatments. The root systems are flexible, regenerative, and respond favorably to hydraulic disturbance - characteristics that exceed the performance of conventional geotextile alternatives. Fish habitats are enhanced by incorporating root wads and downed trees in the designs, beneficial scour holes are created in acceptable sites, and low energy resting zones are developed down-gradient of instream structures.

Short-term increases in turbidity and sedimentation resulting from construction may be offset by reduced erosion of soil in the action area, but frequently result in no net reduction as erosion is displaced to other locations. Larger juvenile and adult salmon appear to be little affected by ephemerally-high concentrations of suspended sediments that occur during most storms and episodes of snow melt. However, other research shows that feeding and territorial behavior can be disrupted by short-term exposure to turbid water. At moderate levels, turbidity has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish (Spence *et al.* 1996, Berg and Northcote 1985). Localized increases of turbidity during in-water work will likely displace fish in the project area and disrupt normal behavior. The effects are expected to be temporary and localized.

Water temperatures may be degraded by installation of a rock riprap embankment. The placement of rock along the stream bank has the potential to elevate stream temperature. Rock riprap may function as a conductive heat source. Spence *et al.* (1996) say that the nature of the substrate may affect heat transfer, and bedrock more efficiently transfers heat than gravels. Therefore, it can be deduced that the greater the mass available to receive solar radiation the greater the heating potential. Heat collected by the rock during the day elevates night time temperatures thereby dampening diel temperature fluctuations. Using appropriate planting and maintenance techniques, shading by willows planted within the riprap will ameliorate the heating potential of the rock in the long term.

Direct shading of the water surface has the greatest effect on water temperature (BLM 1996). While topography, height of distant trees, and dead material provide some shade, riparian vegetation provides the most benefit. Most stream reaches in the Siuslaw River watershed that are deficient in shade generating vegetation are on private lands (BLM 1996). Proposed livestock exclusion and riparian vegetation plantings may in the long term reduce water temperature increases.

As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of the back-hoes, excavators, and other equipment requires the use of fuel,

lubricants, etc., which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Herbicides used to clear vegetation may be used in riparian areas, where they may enter water bodies. Exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, as well as target and non-target riparian vegetation (Spence *et al.* 1996). Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs) which can cause acute toxicity to salmonids at high levels of exposure and can also cause chronic lethal as well as acute and chronic sublethal effects to aquatic organisms (Neff 1985).

The NMFS expects that the proposed action will result in turbidity (short-term), additional sites of erosion (long-term), fish displacement (long-term), and reduction of channel response to hydraulic energy. Project design features (e.g., season of work, irregular rock toe, plantings) may provide limited benefits to ameliorate impacts.

1.5.2 Effects on Critical Habitat

The NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Effects to critical habitat from these categories are included in the effects description expressed above in *Effects of Proposed Action*.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Other activities within the watershed have the potential to impact fish and habitat within the action area. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes.

Non-Federal activities within the action area are expected to increase with a projected 34 percent increase in human population over the next 25 years in Oregon (ODAS 1999). Thus, NMFS assumes that future private and State actions will continue within the action area, but at increasingly higher levels as population density climbs.

1.6 Conclusion

After reviewing the current status of OC coho salmon, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, the NMFS has determined that the Saylor Bank Protection and Habitat Improvement Project, as proposed, is not likely to jeopardize the continued existence of the OC coho salmon, and is not likely to destroy or adversely modify designated critical habitat for the ESU. This finding is based, in part, on incorporation of best management practices (BMPs) into the proposed project design (i.e.,

ODFW in-water work window, site revegetation, no equipment in channel, and individual rock placement), but also on the following considerations: 1) Full bank hardening has been limited to that length of bank necessary to protect the house and the associated access bridge; 2) willow plantings have been incorporated into the riprap embankment to provide limited shading; 3) revegetation of the banks and livestock exclusion will provide an allochthonous material source and assist in limiting potential detrimental water temperature affects resulting from direct solar radiation of the water surface; and 4) the proposed action will not appreciably reduce the functioning of the ESU's already impaired habitats, or retard the long-term progress of impaired habitats toward properly functioning condition (PFC).

1.7 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitats, or to develop additional information. The NMFS believes the following conservation recommendations are consistent with these obligations, and therefore should be carried out by the NRCS:

1. The NRCS should develop guidelines to minimize the use of riprap in erosion control activities, including any reconstruction, repairs or improvements to sites already hardened. The guidelines should be built on consideration of the following factors:
 - a. The mechanisms of bank failure based on the geometry of the bank and channel at the project site (e.g., toe and bank surface erosion, local scour, avulsion, mass wasting);
 - b. the cause of bank failure (e.g., natural channel evolution, increased flows, loss of bank vegetation, floodplain activities);
 - c. existing riparian and aquatic habitat conditions that must be protected or mitigated by the project to protect the site's productive capacity and opportunities for restoration in the future; and
 - d. the risk of bank erosion to safety, property and habitat, including the economic cost to the extent known.

Further, the guidelines should ensure that each project that must use rock and riprap will be built using Class 350 metric or larger rock (unless that would constrict the channel migration zone) and include complex wood placement and revegetation of the natural bank line.

2. The NRCS should develop educational materials to ensure that future landowners that participate in NRCS conservation plans are aware of and, to the maximum extent possible, apply guidelines to minimize the use of riprap.

The NMFS believes these guidelines and their use will help to reduce the adverse effects of erosion control projects on designated critical habitats. In order for the NMFS to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed salmon and their habitats, NMFS requests notification of any actions leading to the achievement of these conservation recommendations.

1.8 Reinitiation of Consultation

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). Reinitiation of consultation is required: (1) If the amount or extent of incidental take is exceeded; (2) the action is modified in a way that causes an effect on the listed species that was not previously considered in the biological assessment and this Opinion; (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered species and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by NMFS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, and sheltering. Harass is defined by NMFS as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the term and conditions of this Incidental Take Statement.

2.1 Amount or Extent of Take

The NMFS anticipates that the proposed action covered by this Opinion has more than a negligible likelihood of incidental take of juvenile OC coho salmon resulting from the long-term removal of potential natural rearing habitat due to the use of riprap. Effects of actions such as these are largely unquantifiable in the short term. The effects of these activities on population levels are also largely unquantifiable and not expected to be measurable in the long term.

Therefore, even though NMFS expects some low level of non-lethal incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself.

In instances such as this, NMFS designates the expected level of take in terms of the extent of take allowed. Therefore, NMFS limits the area of allowable incidental take during construction to the distance from the action site downstream for a distance of 1.0 mile. Incidental take occurring beyond these areas is not authorized by this consultation.

2.2 Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. Minimize the likelihood of incidental take from construction activities in or near watercourses by implementing pollution and erosion control measures.
2. Minimize the likelihood of incidental take associated with impacts to riparian and instream habitats by avoiding or replacing lost riparian and instream functions.
3. Minimize the likelihood of incidental take associated with instream work by restricting work to recommended in-water work periods.
4. Monitor the effectiveness of the proposed conservation measures in minimizing incidental take and report to NMFS.

2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the NRCS must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To Implement Reasonable and Prudent Measure #1 (construction), above, the NRCS shall ensure that:
 - a. All exposed or disturbed areas will be stabilized to prevent erosion.
 - i. Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,² mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within 7 days of exposure.
 - ii. Seeding outside the growing season will not be considered adequate nor permanent stabilization.

² By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

- iii. All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.
 - b. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.
 - c. Heavy equipment will be fueled, maintained and stored as follows.
 - i. Vehicle staging, maintenance, refueling, and fuel storage areas will take place a minimum of 150 feet horizontal distance from any stream.
 - ii. All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
 - iii. When not in use, vehicles will be stored in the vehicle staging area.
 - d. No pollutants of any kind (e.g., petroleum products, wet concrete) shall contact the area below the bankfull elevation.³
 - e. No *surface* application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.
 - f. No herbicide or pesticide use shall occur as part of this permitted action.
2. To implement Reasonable and Prudent Measure #2 (riparian and instream habitats), the NRCS shall ensure that:
- a. Alteration or disturbance of the stream banks and existing riparian vegetation shall be minimized.
 - b. Disturbed soils shall be seeded (see Term and Condition 1.e).
 - c. Minimize the use of rock and riprap. When rock must be used with other erosion controls below bankfull elevation, class 350 metric or larger rock is preferred.
 - d. Once riprap has been placed, native materials excavated during site preparation will be placed over the top of the riprap above the bankfull elevation to fill interstitial spaces.

³ "Bankfull elevation" herein is interpreted to mean the bank height inundated by a 2-year average recurrence interval and may be estimated by morphological features such average bank height, scour lines and vegetation limits.

- e. Revegetation plantings will use only natural vegetation.⁴
 - f. Any instream large wood moved or altered during construction will stay on site.
 - g. Plantings will achieve an 80 percent survival success after three years.
 - i. If success standard has not been achieved after three years, the landowner will submit an alternative plan to the NRCS. The alternative plan will address temporal loss of function.
 - ii. Plant establishment monitoring will continue and plans will be submitted to the NRCS until site restoration success has been achieved.
 - h. All initial plantings shall occur prior to April 15, 2002.
3. To implement Reasonable and Prudent Measure #3 (instream work), the NRCS shall ensure that:
- a. All in-water work will be completed within the ODFW approved in-water work period (July 1 - September 15).⁵ Extensions of the in-water work period should not be anticipated except under extenuating circumstances and must be approved in advance by NMFS in writing.
 - b. Rock shall be individually placed to produce an *irregularly* contoured face to provide velocity disruption. No end dumping shall be allowed.
 - c. Rock placement shall minimize bank encroachment on the existing channel to the greatest extent possible.
4. To Implement Reasonable and Prudent Measure #4 (monitoring), the NRCS shall ensure that:
- a. Post-construction monitoring reports are provided to NMFS describing the success of conservation measures, confirmation of as-builts, and documentation of planting success. These reports will be submitted as outlined below.
 - b. *Construction Report*. The report on the conservation measures and as-built component of monitoring will be provided within 60 days following completion

⁴ By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

⁵ Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000) (identifying work periods with the least impact on fish) (http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

of the proposed action, but no later than October 31, 2001, and include a description of:

- i. Specific methods used to minimize turbidity;
- ii. stream conditions before and following any wet excavation;
- iii. extent of visible turbidity plume, in terms of distance downstream from project site and including the span of time after in-water activity before plume no longer evident;
- iv. any observed injury and/or mortality of fish resulting from project activities; and
- v. verify the finished grade and elevations were constructed as designed, including use of irregular contours. The finished embankment toe placement shall be confirmed by tying it back to a pre-existing, stable, and measurable landmark.

- c. *Planting Report.* Following the completion of plantings associated with the structural bank protection, annually provide NMFS with a report by December 31 describing the success of plantings required under Reasonable and Prudent Measure #2. The report should focus on actions taken to ensure that plantings were done correctly and success at meeting the objective of 80 percent or higher survival rate after three years, as well as indicate any replantings completed during the preceding 12-month period. The report shall include photo documentation. Once 80 percent or greater survival has been documented for three consecutive years, this reporting requirement may be discontinued.

- d. Monitoring reports shall be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch, Habitat Division
Attn: OSB2001-0108
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

- e. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fisheries Service Law Enforcement Office, at the Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360.418.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed.

- f. Landowners will agree to allow reasonable access⁶ to sites for long-term monitoring of the effectiveness of these reasonable and prudent measures, terms and conditions, for avoiding and minimizing take. This access is not intended for enforcement purposes. If potential violations are discovered, the appropriate agency will work cooperatively with the landowner to achieve compliance.

3. MAGNUSON-STEVENSON ACT

3.1 Background

On May 21, 2001, the NMFS received a letter from the NRCS requesting Essential Fish Habitat (EFH) consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for the subject action. The objective of the EFH consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action. This consultation is undertaken pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50CFR600).

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and spawning, breeding, feeding, or growth to maturity covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

⁶ "Reasonable access" means with prior notice to the permittee, the NRCS and NMFS may at reasonable times and in a safe manner enter and inspect authorized projects to insure compliance with the reasonable and prudent measures, terms and conditions, in this biological opinion.

- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed action is detailed above in Section 1.2 of this document. The action area includes a reach of Wildcat Creek from approximately river-mile 5 to river-mile 4. This area has been designated as EFH for various life stages of chinook salmon and coho salmon.

3.5 Effects of Proposed Action

As described in detail in Section 1.5 of this document, the proposed activities may result in detrimental short- and long-term adverse effects to a variety of habitat parameters. These impacts include: water quality (turbidity and chemical contamination), water temperature, stream hydraulics, and displacement of rearing juveniles.

Effect #1: Turbidity - Excavation of a toe trench in the wetted channel will result in short-term releases of sediment. An increase in turbidity can impact fish and filter-feeding macro-invertebrates downstream of the work site.

Effect #2: Water Temperature - The use of rock riprap may function as a conductive heat source. Interstitial willow and top of bank plantings will minimize or negate the effects to water temperature.

Effect #3: Chemical Contamination - As with all construction activities, accidental release of fuel, oil, and other contaminants may occur.

Effect #4: Stream Hydraulics - Simplification of the embankment may result in velocity acceleration and subsequent relocation of erosion to another site, either upstream or downstream. Simplification also reduces refugia sites for fish, which assist in predator avoidance and maintenance of position during high flow events.

Effect #5: Habitat Use - Peters *et al.* (1998) found that densities of juvenile coho salmon were generally reduced at riprapped sites when compared to areas containing large woody debris or undercut banks.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for Pacific salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the NRCS, all Conservation Recommendations outlined above in Section 1.7 and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Consultation Renewal

The NRCS must reinitiate EFH consultation with NMFS if either action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on the best scientific and commercial data available. This section identifies the data used in developing this Opinion.

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